

JOHN ASHCROFT  
Governor

FREDERICK A. BRUNNER  
Director



STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES

Division of Energy  
Division of Environmental Quality  
Division of Geology and Land Survey  
Division of Management Services  
Division of Parks, Recreation,  
and Historic Preservation

MEMORANDUM

SP-3950-093300

DATE: March 30, 1987  
TO: Westlake Landfill File  
FROM: Mr. Bill Weis, Superfund Section  
Waste Management Program  
SUBJECT: Summary Westlake Landfill Report Review

Site: West Lake AL2  
ID # MBD07990932  
Break: 17.8  
Other: 3.30.87  
CWN

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In general, the groundwater level monitoring information looks very good. This information appears to give us a good picture of groundwater levels in the alluvial aquifer during normal conditions. The report does not mention, however, worse case conditions for the groundwater level. During a major flood or extended wet weather period, would the maximum groundwater level, indicated by the report, be exceeded? Would this groundwater level rise to the point leachate production in the landfill would be increased?

The sampling data provides a significantly less clear picture of contamination potentially created by the landfill. The consistent detection of methylene chloride and acetone in one set of samples makes me wonder if sampling containers were properly baked out after cleaning. Other parameter results were more random and did not present a general trend of contamination originating from the landfill. Some sample results did indicate contamination was entering the aquifer; however, due to randomness of the results, the source of this contamination would be impossible to predict.

The greatest failing of the report is the lack of discussion on how leachate is formed at this site and what factors would increase leachate contamination from the landfill. The relative value of the sampling data would appear impossible to determine, unless the rate of leachate production for the period prior to the sampling is considered.

River flow data in the report would imply the December, 1985 sampling occurred in a relatively wet weather period, and the June, 1986 sampling was during a dry period. However, consideration of the drainage area makes these assumptions merely guesswork. Also, since this site is still being utilized for disposal of demolition materials, the rate of leachate production per rainfall event would be impacted by daily operations and grading being conducted on the site at that time.

Ideally, to assess the impact of the landfill on the aquifer, an estimate of leachate production entering the groundwater and its dilution by dispersion in the aquifer, would be necessary. Calculation of the general flow rate of the

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aquifer downstream would appear necessary to assess available dilution. The volume of groundwater leaving the aquifer appears less important than the rate of flow out of the aquifer.

We agree additional monitoring needs to be performed. Selection of parameters to be analyzed for should consider the hazardous materials known to be buried at this site. Potential contaminants of concern were not addressed by the report.

Future monitoring should also be correlated with rainfall or other factors relative to leachate production to document the periodic slug flow characteristics leachate generation might be expected to exhibit.

#### COMMENTS ON WESTLAKE LANDFILL STUDY

- 1) The study does not address the impact of weather conditions on leachate production. The landfill is shown to be located above the seasonal high groundwater level, indicating leachate production and movement of water from the landfill would be impacted most by rainfall. The report makes no effort to determine if leachate production at the time of sampling is representative of average conditions.
- 2) The report does not address historical information on what types of special wastes had been buried in this landfill. If available, this information should be considered in establishing parameters for future analysis.
- 3) The report estimates groundwater flow rates in the upper and lower zones of the aquifer and flow into the new landfill. Assumptions for the variables used to calculate these values were not given.
- 4) It would appear groundwater flow in the alluvial aquifer would follow the river at a relatively rapid rate for groundwater. The report did not try to quantify the total downstream rate of flow. It would appear this information would be necessary to support assumptions on available dilution for leachate entering the aquifer.
- 5) What is the maximum groundwater level which would be expected during a flood or extremely wet weather period?

WAW:krd